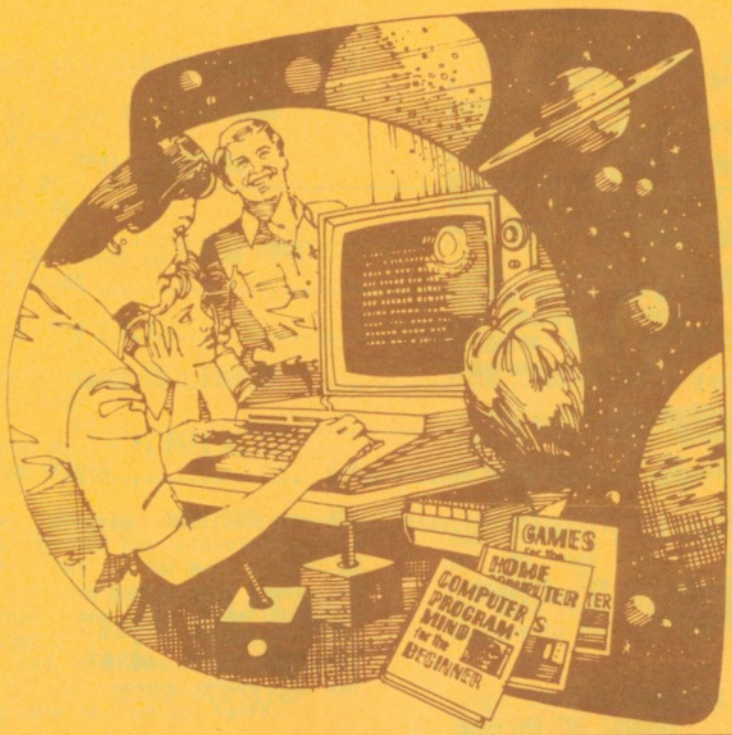
Vol.1 No.6 Sept. 1982

SYNCHRO 'SETTE



THE SUBSCRIPTION MAGAZINE FOR
THE T/S-1000 and THE ZX-81 MICROCOMPUTERS

SYNCHRO-SETTE

The Subscription Magazine For The
ZX-81 AND T/S-1000 MICROCOMPUTERS

IN THIS ISSUE — SEPTEMBER 1982

SYNCHRO-SETTE is published monthly by:

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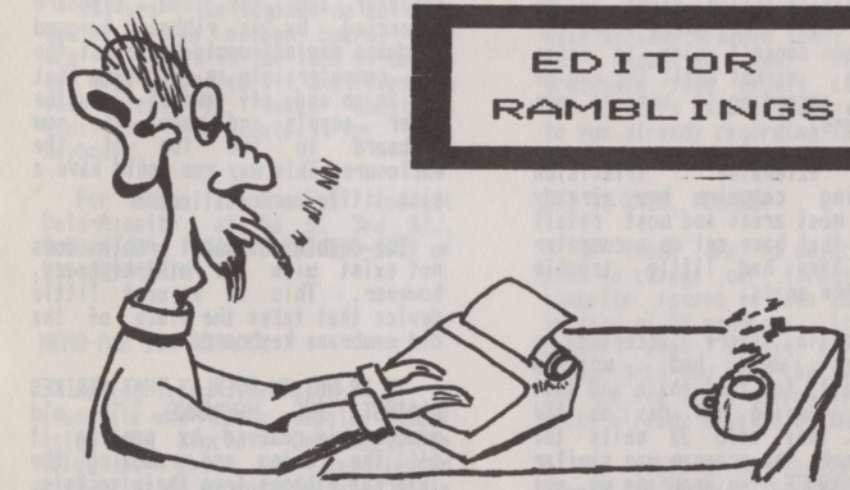


EDITOR RAMBLINGS

MISTAKES IN LISTED PROGRAMS

July/82 - Page 11 - line 1030
should read:

```
1030 IF B$ = "*" THEN
     LET B$ = " "
```

August/82 - page 16 - line 9998
should read:

```
9998 LET N = N + 1
```

August/82 - page 15 - line 30
should read:

```
30 PRINT N; " - "; PEEK N,
   CHR$ PEEK N
```

The program NAME/ADD on the August/82 tape has presented quite a few difficulties for many of you. We have had some people who have told us that they have experienced no problems at all with it where others have had problems from not being able to load certain names to not being able to load any names.

One gentleman called to tell me of a certain last name that would get lost where it could not be recalled. Yet when I entered this name to my file, it was recalled with no problem.

The program uses some unique string manipulating techniques that possibly tax the computers calculating capabilities to the utmost. I originally wrote this program to be a subject for a future article but apparently it has too many bugs to be practical.

As a result of this situation, I intend to provide a different Name and Address program on the October cassette using more conventional programming methods.

Our thanks and apologies to the readers who have brought this and other mistakes to our attention

After working with other publications, I can assure you that we do not have a monopoly on misprints. The best we can offer is to make these mistakes known to the readers in the next publication.

TIMEX T/S-1000 COMPUTERS
SWEEPING THE COUNTRY

The Timex Computers are now being sold almost everywhere in the U.S.A. Reports are coming in from our subscribers that almost everywhere in the U.S., the computers, 16K RAMpacks and Timex software are

available.

The only exception seems to be the West Coast area, where Timex for some reason doesn't plan to enter into the market until the end of the year, according to one of our subscribers.

An extensive television advertising campaign has already begun in most areas and most retail outlets that have set up a computer display have had little trouble selling the units.

One chain store accepted a demo-tape we had written specifically for that chain and just left it running all day on the computer. They sold 38 units the first week. The program was similar to the MARQUEE type programs we put on our cassettes.

Stores that we are aware of that are now selling the computers in large quantities are K-MART and VENTURE. J.C. PENNEYS, SEARS, MONTGOMERY WARDS and most other large chains should soon follow.

KEYBOARDS FROM DATA-ASSETTE

We recently received the two keyboards offered by Data-Assette. One is a conventional type that solders directly onto the Sinclair circuit board via a ribbon connector. I had a slight problem when I misread the instructions but a call to Data-Assette cleared up the problem.

Not a project for those who are not versed in soldering circuit boards. We suggest that if you want this type of keyboard hooked up to your computer and you question your own abilities, then let someone who is more capable do the job for you.

The difference in using this type of keyboard is however like night and day. What a pleasure to feel the positive action of the moving keys as compared to visually having to guide your fingers over the membrane keyboard.

The only other problem is that you now have 2 components, the old computer and the new keyboard connected by a ribbon. A good hardware project would be to put the old computer into an enclosure that has an on and off switch for the power supply and mount the new keyboard to the top of the enclosure. This way you would have a nice little work station.

The double component problem does not exist with the mini-keyboard, however. This is a neat little device that takes the place of the old membrane keyboard.

IT IS NOT AN OVERLAY THAT STRIKES AGAINST THE MEMBRANE. The old membrane is removed by peeling it off the casing and removing the internal ribbons from their sockets. The keyboard is then fastened into the position where the old membrane was, with double-faced tape pads (I used extra ones that I cut from a roll that can be purchased from any hardware store). The electrical ribbons are then pushed into the appropriate sockets. Make sure that you bend the pins at the ends of the ribbon up and flat against the ribbon. If you study the directions, the whole procedure takes about 20 minutes and requires no soldering at all.

The result is a computer that looks and feels like a thousand dollar unit with keys that give a positive clicking action when they are depressed. I am so impressed with the final appearance and usability that I highly recommend it to anyone who desires a quality keyboard combined with portability. The combination of this type of machine with the slim-line MEMO-PAK RAM pack is a very attractive package.

The only problem with the mini-keyboard is that the legends are about half the size of the old membrane legends and are harder to read. This takes some getting used to but after the user has worked with it for a while, he or she usually begins to memorize the

functions of the keys anyway.

Oh, yes - the legends do not come on the keys of either board. They are on sheets in the form of decals and must be peeled off and fixed to each key. It takes about an additional 45 minutes for each keyboard.

For more information contact Data-Assette at 56 S. 3rd St., Oxford, PA, 19363, 1-800-523-2909 or 215-932-4887

MEMO-PAK 16K RAMPACK

Acting upon the advice of an associate who runs a computer school using the Sinclair Computers, he told me that he experienced virtually no program crashes while using the Memo-Tech RAM packs. I ordered one and received it about 1 week after I put my check in the mail. So far it has been very reliable. The only problem I have experienced is that the screen clarity is not as good as with the Sinclair or Timex RAM packs but this seems a small price to pay.

The Timex RAM pack also seems very reliable after about a week's use although the first one I bought had to be returned because it was defective.

MICRO-DRIVE FROM SYNC-WARE

A micro-disk drive should be available about January of 1983 for the ZX-81 or T/S-1000. It will approximate the specifications of the proposed drive for the SPECTRUM computer and will sell for around $200.

For further information contact Sync-Ware, 1000 Logan, #201, Denver, CO, 80203

MINDWARE PRINTER DELAY

For those of you contemplating the purchase of the Mindware plain-paper printer (# M-W100), they have not yet been approved by the F.C.C. Certification is expected by the end of September. If any of you have already ordered them, they have not deposited your checks or processed your credit card orders yet. Letters have probably been sent to you already regarding this.

LET US KNOW, PLEASE!

If there are no objections, we plan to change our format on the cassette issues to have 2K programs instead of 1K programs. It is our belief that almost all of our subscribers now have the 16K RAMpack and the new TIMEX owners without the packs already have 2K of RAM.

The quality of the 2K programs should far surpass the 1K versions and everyone should benefit. We have a stand-alone three game pak cassette written in 2K. Two of the 1K versions of these programs appeared on the April/82 cassette. The difference is startling.

If, however, enough of you write to me that want the 1K format kept, I will bow to your wishes.

Next month on the 1K side of the cassette, I will put some 2K programs after the 1K programs.

CHICAGO JUDGE SELECTIONS MADE BY COMPUTER

1984 is almost here or is it? Divorce cases being heard in the Cook County Courts will now be heard by judges selected at random by a computer.

Reasoning behind this move was motivated by complaints from parties that felt judges were being selected by recommendation of the attorneys of the divorce parties.

The process involving a computer is not as complicated as it may first appear. A simple program could be written on any computer that has the RAND and RND functions.

WHAT IS VU-CALC?

Many of you have called me asking what the Timex Vu-Calc program for 19.95 is all about. I have just received one but have not yet been able to review it. I have however, used its big brother, VISA-CALC on both the TRS-80 and the APPLE computers which cost $150 and up and if it has one tenth the capability of VISA-CALC, it will be one of the most valuable and versatile programs a person can have, particularly for business applications.

The easiest way to describe it is that it turns your computer into an electronic spreadsheet where groups of calculations can be performed all at once. Formulas and data are entered into boxes of a grid of which sections are shown on the screen. Each box has a coordinate that is referenced by a code.

To give an example, let's say that you had a company where you were manufacturing a product. You would have to purchase materials from other companies, pay rent or mortgage payments on your building, pay wages, overhead expenses such as utilities, upkeep, insurance and so forth. You also would sell your finished product or products according to different price schedules depending on the quantity purchased, discounts, service charges, etc.

The end result is to find out what your company's net profit would be over a given period of time.

Now let's say that one of your suppliers has upped the price on one of the material components used in your product. You would simply introduce the new price into the appropriate box and almost instantly, all of the data in the other affected boxes are changed. You could do the same thing with the selling price of your product, employee wages or any other area that would have to be changed and the whole picture would be changed in those areas pertaining to the newly introduced data.

Companies use programs such as these to set up marketing programs for their products. I used the VISA-CALC program to set up the marketing program for SYNCHRO-SETTE.

It can also be used in such diverse areas as school class schedules, bowling leagues, company rate sheets, stock market analysis, price schedules, airline or train time-tables, TV program listings - the list goes on and on.

Next month I plan to do a review on the VU-CALC program with sample entries.

FOR WHAT IT'S WORTH

There seems to be two types of attitudes toward computers.

In the first, the person embraces the very concept of what the computer can do. He or she develops a love affair with it that can last longer than the infatuation between two people. In extreme cases, the computer and person become almost one, oblivious to the outside world.

In the other, the person rejects the computer completely, whether the reason be fear, lack of knowledge or whatever. In extreme cases, persons have been known to sabotage computer operations because they felt threatened by their presence.

Children seem do adapt more easily to the computer world than do adults.

These attitudes seem to be unshakeable and there aint no in between.

SHORT PROGRAMS

"INFLATION" - 1K

Here is a program that tells you what you can expect to pay in a future year for an individual item. You can also use it to calculate what your wages may be in the future.

The first prompt asks you what the item is that you want to calculate the future price for. The second prompt asks for the current cost of the item. The third prompt asks what year you want to see the cost for this item and the fourth asks for the average yearly inflation rate. A sample set of inputs might be:

```
WHAT IS THE ITEM? (gasoline)
CURRENT COST OF ITEM? (1.45)
WHAT YEAR?           (1987)
YEARLY INFLATION RATE? (10)

GASOLINE THAT COST 1.45
IN 1982 WILL COST 2.3352395
IN 1987
```

Use it to calculate the cost of food items, wages, automobiles, real estate, rent, etc.

```
80 PRINT "WHAT IS THE ITEM?"
90 INPUT I$
100 PRINT "CURRENT COST OF
    ITEM?"
110 INPUT C
120 PRINT "WHAT YEAR?"
130 INPUT Y
140 PRINT "YEARLY INFLATION RATE?"
150 INPUT R
160 LET F = C * ((1 + (R / 100))
    ** (Y - 1982))
170 PRINT ", I$ ;" THAT COST ";
    C; TAB 32; "IN THE YEAR ";Y;
    "."
180 INPUT A$
190 CLS
200 RUN

Syntactic Sum = 15188
```

"PYRAMID" - 2K

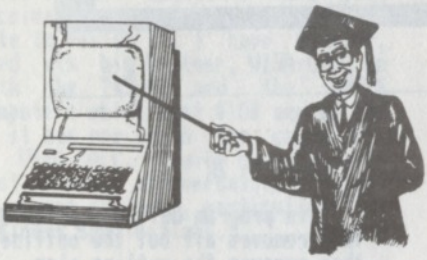
This program builds a pyramid and then removes all but the outline and then removes the outline also. This is an excellent example of how a programmer might want to have an introduction to a game or use the generated graphics as a base to build a game around.

Experiment by changing some of the values of the numeric variables and by introducing the FAST and SLOW commands into the program

```
10 LET A = 1
20 LET B = 1
30 FOR N = A TO 63 - A
40 PLOT N,B
50 NEXT N
60 LET A = A + 1
70 LET B = B + 1
80 IF A = 33 THEN GOTO 100
90 GOTO 30
100 LET A = 2
110 LET B = 1
120 FOR N = A TO 63 - A
130 UNPLOT N,B
140 NEXT N
150 LET A = A + 1
160 LET B = B + 1
170 IF A = 32 THEN GOTO 200
180 GOTO 120
200 LET B = 1
210 FOR A = 1 TO 32
220 UNPLOT A,B
230 LET B = B + 1
240 NEXT A
250 LET B = 32
260 FOR A = 31 TO 62
270 UNPLOT A,B
280 LET B = B - 1
290 NEXT A
300 RUN

Syntactic Sum = 26246
```

the Computer Tutor



MOVING GRAPHICS

Good morning Class! How are you today? Will someone nudge that fellow in the back seat and wake him up? Thank you.

Today's discussion will be on graphics. As most of you know, the ZX-81 and T/S-1000 computers come with graphics characters to be entered directly from the keys. This is not true of most other microcomputers.

Key-entered graphics represent an easy method for the user to realize the desired effect he or she wishes to achieve. These same graphic characters can be generated on the screen by another method, however. Does anyone know what that might be?

Yes, the gentleman in the rear has his hand up?

I don't think the class heard his reply so I'll repeat it.

He says we can write a program that will peak the ROM memory locations and and have it transfer the character data held in these locations, to areas of the screen designated by another routine that would map the screen co-ordinates.

A suprising and in depth answer, I might say, especially from one who was sound asleep only two minutes ago. As usual, it is not the answer I was looking for, although, in essence, the correct method does exactly that.

The answer is to use the character string or CHR$ function. If all of you would turn to the character set section of the user's manual on page 137, you will see the Sinclair character codes for the ZX-81 and T/S-1000 which are numbered from 0 to 255.

After looking over this list, we might enter this simple program into our computer:

```
5 PRINT TAB 3;"CHARACTER CODE
  GENERATOR"
10 PRINT AT 20,0;"WHICH
   CHARACTER WOULD YOU LIKE",
   "TO SEE?"
20 INPUT A
30 PRINT AT 10,10;A;" - ";
   CHR$ A;"
40 GOTO 10
```

Upon RUNning this program we find that we can generate any of the listed characters by entering the corresponding code.

You will notice that lines 10 and 30 PRINT the information at specified co-ordinates on the screen. These locations can be identified from the chart on page 89 of the ZX manual and 67 of the T/S manual.

In other BASICs, the capability of generating lines of multiple characters exists through the STRING$ function. The format

STRING$(n,c) would be used where (n) is the number of characters you want to appear in a row and (c) is the CODE of the character itself. This function is useful in producing graphic displays both for the screen and for print-outs.

Unfortunately it doesn't exist for the ZX-81 and the T/S-1000. It can be simulated in 4 program lines, however.

Let us say that we wanted a string of the character (*), code number 151 to appear on the screen in two layers or lines. We could accomplish this with the following line number:

```
10 PRINT "(inverse *)(inverse *) ...
(64 times)"
```

or -

```
10 PRINT CHR$ 151 + CHR$ 151 ... (64
TIMES)
```

If we wanted to fill the screen with these characters we would have to enter these characters 704 times - a very tedious procedure indeed.

Enter the following program:

```
10 LET A$=""
20 FOR N = 1 TO 64
30 LET A$ = A$ + "(inverse *)"
        or
30 LET A$ = A$ + CHR$ 151

40 NEXT N
100 PRINT A$
```

The first four lines simulate the STRING$ function exactly. Line 100 PRINTs the string of characters. We can print this string as many times as we want or as the screen will allow by entering the following lines:

```
90 FOR N = 1 TO 10
110 NEXT N
```

On a 2K and 16K machine the screen will have 20 lines of inverse asterisks. On a 1K machine there will be somewhat less.

MOVING GRAPHICS

In some programs, particularly games, we may have noticed graphic characters or sets of characters that move across the screen either up or down, sideways or at angles. Let us write a routine that takes a 16 character string by changing the 64 in line 20 to 16 and moves it in snake-like fashion from the top of the screen to the bottom.

Delete lines 90, 100 and 110 and add the following lines:

```
50  LET A = 0
100 FOR N = 0 TO 31
110 PRINT AT A,N; A$
120 PRINT AT A,N; " "
130 IF N = 31 THEN LET A =
    A + 1
140 NEXT N
150 GOTO 100
```

Has anyone seen anything similar to this effect in any of the Synchro-Sette subscription cassette programs? Yes, the gentleman in the back again?

That's right! The Marquee and the Bulletin Board programs use this effect.

But perhaps you would like to see something more intricate - something with a little more pizazz - something that shows movement in more directions than just one.

Enter the following program:

```
10 LET A$ = "(inverse *)"
100 FOR A = 5 TO 15
110 FOR N = 1 TO 10
120 GOSUB 1000
130 NEXT N
140 NEXT A
150 FOR A = 5 TO 15
160 FOR N = 30 TO 21 STEP -1
170 GOSUB 1000
180 NEXT N
190 NEXT A
200 FOR N = 11 TO 20
210 FOR A = 1 TO 5
220 GOSUB 2000
230 NEXT A
240 NEXT N
250 FOR N = 11 TO 22 20
```

```
260 FOR A = 20 TO 15 STEP -1
270 GOSUB 2000
280 NEXT A
290 NEXT N
300 LET A$ = "SINCLAIR"
310 LET A = 9
320 LET B = 8
330 FOR N = 19 TO 12 STEP -1
340 PRINT AT A,N; A(B)
350 LET B = B - 1
360 NEXT N
370 LET A$ = "COMPUTER"
380 LET A = 11
385 LET B = 1
390 FOR N = 12 TO 19
400 PRINT AT A,N; A$(B)
410 LET B = B + 1
420 NEXT N
430 LET A = 7
440 LET N = 19
450 GOSUB 3000
460 LET A = 13
470 GOSUB 3000
480 LET N = 12
490 GOSUB 3000
500 LET A = 7
510 GOSUB 3000
999 GOTO 430
1000 PRINT AT A,N; A$
1010 PRINT AT A,N-1; " ";
     AT A,N+1; " "
1020 RETURN
2000 PRINT AT A,N; A$
2010 PRINT AT A-1,N; " ";
     AT A+1,N; " "
2020 RETURN
3000 PRINT AT A,N;CHR$(( INT
     (11 * RND) + 128 ))
3010 RETURN
```

SYNTACTIC SUM = 56493 (56738)

This program will RUN comfortably in 2K. The routines to provide movement are covered in the up, down and sideways directions.

Lines 100 to 140 provide left to right motion. Lines 150 to 190 provide right to left motion. Lines 200 to 240 provide up to down motion and lines 250 to 290 provide down to up motion. Subroutine 1000 provides the coordinates for the graphic characters to appear and erases the old graphics characters to give the appearance of movement.

The routines starting at lines 300 and 370 allow the message words to appear on the screen one character at a time and the routine starting at line 430 along with subroutine 3000 provides the changing graphics characters.

Words are printed onto the screen from two different directions and random graphics characters are displayed from four different positions.

Parameters are set in each routine to limit the distance each graphic character will travel.

There is another method of generating a different form of graphics to the screen. Does anyone have an idea what this might be?

Who else! Go ahead, Sir.

Wrong again as usual.

The gentleman in the rear stated that we can POKE graphics directly onto the screen. Although the Sinclair machines have this capability in a limited fashion as evidenced in the LABYRINTH program, it is usually beyond the scope of normal BASIC programming methods to accomplish it.

Does anyone else have an idea? Yes, the lady in the front?

Yes, that's right - by using the PLOT and UNPLOT commands.

Enter the following program and the RUN it:

```
100 LET X = 1
110 LET Y = 1
120 IF Y = 42 THEN GOTO 200
130 GOSUB 1000
140 LET X = X + 1
150 LET Y = Y + 1
160 GOTO 120
200 IF X = 62 THEN GOTO 300
210 GOSUB 1000
220 LET X = X + 1
230 LET Y = Y - 1
240 GOTO 200
300 IF Y = 1 THEN GOTO 400
310 GOSUB 1000
320 LET X = X - 1
```

```
330 LET Y = Y - 1
340 GOTO 300
400 IF X = 1 THEN GOTO 120
410 GOSUB 1000
420 LET X = X - 1
430 LET Y = Y + 1
440 GOTO 400
1000 PLOT X,Y
1010 UNPLOT X + 1,Y + 1
1020 UNPLOT X - 1,Y + 1
1030 UNPLOT X + 1,Y - 1
1040 UNPLOT X - 1,Y - 1
1050 RETURN

SYNTACTIC SUM = 30794
```

Kinda reminds you of those old Pong games that were so popular a few years ago, doesn't it?

As you can now see, we have angular motion in all directions. This program will also RUN in 2K and will cycle about 6 times before the coordinates it is told to PLOT and UNPLOT are of illegal values. An excellent exercise for you students is to try to rewrite this program so that the coordinates that are generated are always in the legal area of the screen.

The secret to achieving moving graphics is to place a graphics character at a certain position on the screen and then erase it and place another right next to it in the direction you want the character to appear to move. FOR/NEXT loops are the most common way of accomplishing this.

If one were to combine these techniques with the ones used for generating a screen memory map as we discussed in the MAY/82 lesson, we could write a program like BOUNCING-BOMBS.

I would like to have each of you write a short program utilizing both of these methods and have it ready for the next class.

HEY, WHERE ARE YOU ALL GOING? CLASS ISN'T DISMISSED YET.

HEY - COME BACK - I WAS ONLY KIDDING .....

LETTERS TO THE EDITOR

Dear Ed.

My ZX-81 has developed a glitch. When instructed to 'PRINT 1 - .999', the computer responds with .001000002. When instructed to 'PRINT 100 - 99.99', I am treated to .0099999998 and similar results are produced for every subtraction which results in amounts of .01 or less. Why does this happen?

J.A. Phillips. Chula Vista, CA

Well I'll tell you, J.A. - I don't know for sure. When I instruct the computer to 'PRINT 100 - 99.99', I get .0099999995. The 1 - .999 gives the same answer you get. In the cassette program NAME/ADD (8/82), which depends heavily on 8 digit accuracy, subscribers were telling me that they were getting strange feedbacks of data that were different from the ones I was getting. The only thing I know for sure is that beyond the first eight digits of the numeric data, the accuracy is not there in the Sinclair machines. Of course you could write a short program that would round off the data to the desired amount of decimal places within the 8 digit limit. The following sample works with both of your examples:

```
10 INPUT A
20 INPUT B
30 LET C = A - B
40 LET C = INT (1000 * C +
   .005)/1000
50 PRINT A; " - "; B;
   " = "; C
```

This is a useful technique where if you remove one (0) from each of the 3 numbers in line 40, you can have the number rounded off to the last 2 digits past the decimal point. This way when using calculations that involve multiplication or division and you must find a total that is in dollars and cents, you get answers with the required amount of decimal places - Ed.

Dear Ed,

I appreciate the new LOADER programs at the beginning of the tape but I do not like the format of a 1K side, a 16K side and the 2 saves of the program. Instead, how about starting off the tape with the LOADER program having a menu of the 1K and 16K programs followed by one of each of the 1K programs and then the 16K programs? The other side of the tape can be a duplicate of the first side. This way the 16K users can easily load the 1K programs without having to flip the tape over. Loading time is also saved by skipping over the second copy of a program to get to the next one. Perhaps the only drawback is that 1K users might unknowingly try to load a 16K program.

Furthermore, I found out that when you try to reload a self-running program by name, it will load whether or not the last character in the file name is specified as inverse.

Dean Koska, Golden Valley, MN.

Dear Dean,

An intriguing idea indeed. My first impression was to disallow any procedure that would change the established format that has proved successful in the past but after pondering your proposal, I can come up with no real arguement to that type of format. At first I thought

that it might require a longer tape than the C-30s that I use now, but since each program is only recorded once, it actually would require less tape space than the 16K side does using the present method.

The only drawback I can forsee is that the LOADER program itself must be limited to 1K which means I may not be able to put some of the bells and whistles into it that I had intended for the 16K version. Also, if there is a bad recording of one of the programs, the user cannot go directly to the next copy and must rewind the tape and start from scratch on the other side. Since the vast majority of the programs load with no difficulty, this shouldn't really be a valid problem.

The advantages seem to outweigh the disadvantages. For one thing, I only would have to make one master tape instead of the two I make now. This should save duplication time also in that the master tapes do not have to be constantly switched.

Good idea - we'll use it on the October/82 tapes - maybe we'll be able to get the tapes to you sooner - thank you - Ed.

Dear Ed,

In the following programs:

LABYRINTH 8/82 1K

Add the following
do-nothing line:

```
100 LET N = SQR PI
    * SQR PI
```

The pronounced jerk is now gone.

ARTIST 8/82 1K

Add the following lines:

```
144 PLOT Y,X
145 UNPLOT Y,X
```

Now we get a flashing pixel in either the draw or erase mode so that there is no difficulty keeping track of its location. The two flashes are even distinctive, with the larger dark phase in the draw mode.

P.S. What is a group of colts called? I was never good at guessing games.

Warren Fricke, Depew, NY

Dear Warren,

Excellent suggestions. I see that you have been doing your homework. The old professor will be proud.

I'm particularlly impressed with your fix for the ARTIST program. You've just made two good 1K programs better.

P.S. Reply - A group of colts is called by a word that has three letters. This word also has a more common meaning. Poor people wear them as clothes or you might use one to wipe up a spill (can't make it too easy for you, can I?) - Ed.

FANCY THAT!

The famed Red Baron of World War I, Manfred von Richthofen, was so highly regarded by the Allied forces he flew against, that they gave him a hero's funeral after he was shot down by a Canadian flyer.

WOULD YOU LIKE TO WRITE FOR ** SYNCHRO-SETTE? **

We are looking for programs and articles. If you feel you have a program that would be of general interest to our subscribers, please contact us.

Programs can cover just about any subject and can be either for the 1K, 2K or 16K ZX-81 or TS-1000 computers. Subjects of normal interest are games, education, sports, business, computer utility programs, graphs, graphics, word-processing and some specialty programs. There has been particular interest in machine or assembly language programs.

If you have a program, contact us by mail or phone and we will send you the particulars by mail. Programs sent to us directly should be on cassette and be de-bugged. We also need type-written, easy to understand documentation on the nature and use of the program.

If you have had an interesting experience or information that you feel could be newsworthy, by all means, put it down in a type-written article and send it to us.

We will proof-read each article or program documentation and reserve the right to evaluate and edit it to our specifications.

Let us here from you out there!

Jupiter is believed to be two and one half times larger than all the other planets, satellites, asteroids and comets of our solar system combined.

"Everyone is a genius at least once a year. The real geniuses simply have their bright ideas closer together."
G.C. Lictenberg

NEW PROGRAM PACKAGES
From Synchro-Sette

Package #1/16K - 3 Challenging Games - 14.95

#1 - Depth Charge
#2 - Meteors
#3 - Pacmania

Package #2/16K - 3 Old Friends - 12.95

#1 - Tic Tac Toe
#2 - Nimbus
#3 - Tilt-A-Floor

Package #3/2K - 3 Short New Friends - 10.95

#1 - Spider-Dan #2
#2 - Minefield #3
#3 - Spacebridge

Package #4/16K - 2 Home Budget - 14.95

#1 - Checkbook Machine
#2 - Billpayer Machine

Package #5/16K - Pro-Football-Pix - 19.95

ALL NEW PROGRAMS - NEVER SEEN BEFORE

ORDER FORM

Check Items Wanted:

PACKAGE #1	3 Challenging Games	14.95 ( )
PACKAGE #2	3 Old Friends	12.95 ( )
PACKAGE #3	3 Short New Friends	10.95 ( )
PACKAGE #4	2 Home Budget	14.95 ( )
PACKAGE #5	Pro-Football-Pix	19.95 ( )
Back Issue Package 4-5/82 4/82 cass.		8.00 ( )
Back Issue Package 6-7/82 6/82 cass.		8.00 ( )

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IL residents add 5.25% tax
Outside U.S.A. add 1.00 shipping
Send check, money order or Visa/MC #
U.S. currency only

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CITY/TOWN STATE

ZIP CODE PHONE

CREDIT CARD # EXP. DT.

TYPE OF COMPUTER & ADD. EQPT.

THE S & S COMPANY
388 W. LAKE STREET
ADDISON, IL, 60101
(312) 628-8955